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EXAMINER

FETZNER, TIFFANY A

ART UNIT	PAPER NUMBER
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2859

DATE MAILED: 09/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	10/065,848		LASKARIS ET AL.	
	Examiner		Art Unit	
	Tiffany A. Fetzner		2859	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED Final ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. **Claim 1** is rejected under **35 U.S.C. 102(e)** as being anticipated by **Lvovsky et al.**, US patent 6,570,475 B1 issued may 27th 2003, filed November 20th 2000.

3. With respect to **Claim 1**, **Lvovsky et al.**, teaches and shows in figure 1, figure 4, col. 5 line 33 through col. 9 line 18; and col. 2 line 45 through col. 4 line 64] "An open magnetic resonance imaging (MRI) device, comprising: "a main coil" (i.e. component 40) "configured to generate a magnetic field to image a volume, wherein the main coil comprises a first axis, a first radius, and a first axial distance from the volume," [See figure 1] "a plurality of shaping coils" (i.e. field shaping coils 42 [See col. 6 lines 38-43]) comprising second axes, second radii, and second axial distances from the volume, wherein the second radii are smaller than the first radius of the main coil, (i.e. component 40) [See figure 1] "and wherein the second axial distances are greater than or equal to the first axial distance of the main coil to shape the magnetic field in the volume," [See figure 1] Additionally, the examiner notes that the supporting axial recess, or 'step 30' (see figures 4, 5, 9, 10, and 11) "which may be formed in a central portion of each magnetic pole 28, and forms an annular pocket 46, 44 [See col. 6 lines 32-51]" is a "a substantially cylindrical support comprising a third axis and a third radius, wherein the first, second, and third axes are generally aligned with one another, wherein the substantially cylindrical support is disposed radially between the main coil and the plurality of shaping coils;" [See figures 4, 5, and 1] "and a pressure vessel" (i.e. vessel 18) disposed about the

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main coil, the plurality of shaping coils, and the substantially cylindrical support. [See figures 1, 4, 5; and col. 5 line 33 through col. 9 line 18; and col. 2 line 45 through col. 4 line 64]

4. Claims 1-38 are rejected under 35 U.S.C. 102(e) as being anticipated by Kinanen US patent 6,335,670 B1 issued January 1st 2002, filed April 14th 2000.

5. With respect to **Amended Claim 1**, Kinanen teaches and shows " An open magnetic resonance imaging (MRI) device", [See figures 1, 2, col. 1 line 5 through col. 4 line 25] "comprising: a main coil" (i.e. component 30) "configured to generate a magnetic field to image a volume, wherein the main coil comprises a first axis, a first radius, and a first axial distance from the volume; [See figures 1 and 2], "a plurality of shaping coils comprising second axes, second radii, and second axial distances from the volume, wherein the second radii are smaller than the first radius of the main coil, and wherein the second axial distances are greater than or equal to the first axial distance of the main coil to shape the magnetic field in the volume;" [See figure 1 rose ring assembly component 40, col. 3 lines 28-37; as well as figure 2 the upper multiplicity of ferrous discs which are shown in figure 2 as component 80.] "a substantially cylindrical support comprising a third axis and a third radius, wherein the first, second, and third axes are generally aligned with one another, wherein the substantially cylindrical support is disposed radially between the main coil and the plurality of shaping coils; (I.e. see component 36, of figure 1 which connects components 12, 18; and 14, 20 to components 32 and 40 of figure 1) "and a pressure vessel " (i.e. helium can component 32 of col. 3 lines 9-27) "disposed about the main coil, the plurality of shaping coils, and the substantially cylindrical support." [See figures 1, 2].

6. With respect to **Amended Claim 2**, Kinanen teaches and shows from figures 1, 2, col. 1 line 5 through col. 4 line 25; that "the main coil" (i.e. component 30) "is positioned on an outer circumferential surface", beyond / outside) "of the substantially cylindrical support," (i.e. see component 36 of figure 1 which connects components 12, 18; and 14, 20 to components 32 and 40 of figure 1) "and wherein at least one of the

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shaping coils" [See figure 1 rose ring assembly component 40, col. 3 lines 28-37; as well as figure 2 the upper multiplicity of ferrous discs which are shown in figure 2 as component 80] "is positioned on an inner circumferential surface of the substantially cylindrical support." [See figure 1] The same reasons for rejection, which apply to **claim 1** also apply to **claim 2** and need not be reiterated.

7. With respect to **Amended Claim 3**, **Kinanen** teaches and shows from figures 1, 2, col. 1 line 5 through col. 4 line 25; that "The open MRI device of **claim 1**, comprising: a hub positioned along the third axis of the substantially cylindrical support; and a gusset" (i.e. the non-ferrous structural mounting elements which are taught but not shown, to interconnect the upper pole assembly with the upper ferrous structure and the lower pole piece with the lower ferrous structure, of col. 2 line 67 through col. 3 line 3) "positioned radially between the substantially cylindrical support, and the hub." [See figures 1, 2 with the teachings of col. 1 line 5 through col. 4 line 25.] The same reasons for rejection, which apply to **claim 1** also apply to **claim 3** and need not be reiterated.

8. With respect to **Amended Claim 4**, **Kinanen** teaches and shows from figures 1, 2, col. 1 line 5 through col. 4 line 25 "at least one support post positioned between a first half and a second half of the open MRI device, wherein the first half comprises the main coil, the plurality of shaping coils, the substantially cylindrical support, and the pressure vessel, and the second half comprises another main coil, another plurality of shaping coils, another substantially cylindrical support, and another pressure vessel." [See figure 1, component 16; col. 2 line 61 through col. 4 line 25]. The same reasons for rejection, which apply to **claims 1, 3** also apply to **claim 4** and need not be reiterated.

9. With respect to **Amended Claim 5**, **Kinanen** teaches from col. 2 line 67 through col. 3 line 27 and shows from figure 1 that "the at least one support post is attached on one end to a flange formed on the pressure vessel in the first half and attached on an opposite end to another flange formed on the other pressure vessel in the second half. [See figure 1 and col. 2 line 67 through col. 3 line 27.] The same reasons for rejection, which apply to **claims 1, 3, 4** also apply to **claim 5** and need not be reiterated.

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10. With respect to **Amended Claim 6**, **Kinanen** teaches and shows from figures 1, 2, col. 1 line 5 through col. 4 line 25 that "at least one of: the substantially cylindrical support, the hub, or the gusset comprises one of stainless steel, aluminum, or fiber-reinforced composites. [See especially col. 2 line 67 through col. 3 line 49.] The same reasons for rejection, which apply to **claims 1, 3** also apply to **claim 6** and need not be reiterated.

11. With respect to **Amended Claim 7**, **Kinanen** teaches and shows from the abstract, and figure 1 in combination "at least one ferromagnetic ring positioned on the outer circumferential surface of **the substantially cylindrical support**." Because the outer-upper portion of upper assembly 18 is a ferrous ring / the outer-lower portion of lower assembly 20 is a ferrous ring. The same reasons for rejection, which apply to **claims 1, 2** also apply to **claim 7** and need not be reiterated.

12. With respect to **Amended Claim 8**, the teachings of **Kinanen** col. 3 lines 36-41 directly imply that the **Kinanen** magnet comprises a structure in which "the at least one ferromagnetic ring is positioned substantially between coils having opposite current directions to shield interactions between the coils having opposite current directions" because the exact positioning, spacing and polarity of all rings is whatever is needed to optimize the homogeneity of the examination region of the magnetic field to better than 5-20ppm. The same reasons for rejection, which apply to **claims 1, 2, 7** also apply to **claim 8** and need not be reiterated.

13. With respect to **Amended Claim 9**, **Kinanen** teaches and shows from figures 1, 2, col. 1 line 5 through col. 4 line 25; that "the MRI device comprises at least four ferromagnetic rings." The same reasons for rejection, which apply to **claims 1, 2, 7** also apply to **claim 9** and need not be reiterated.

14. With respect to **Amended Claim 10**, **Kinanen** teaches and shows from figures 1, 2, col. 1 line 5 through col. 4 line 25; that "at least one shielding coil positioned on **the** outer **circumferential** surface of the substantially cylindrical support and configured to shield the magnetic field." Because the outer-upper portion of upper assembly 18 is a ferrous ring / the outer-lower portion of lower assembly 20 is a ferrous

ring, which assists in magnetic field optimization. The same reasons for rejection, which apply to **claims 1, 2** also apply to **claim 10** and need not be reiterated.

15. With respect to **Amended Claim 11**, **Kinanen** teaches and shows from figures 1, 2, col. 1 line 5 through col. 4 line 25; that "**the MRI device comprises at least two shielding coils.**" [See the outer-upper portion of upper assembly 18 which is a ferrous ring, and the outer-lower portion of lower assembly 20 which is also a ferrous ring.] The same reasons for rejection, which apply to **claims 1, 2, 10** also apply to **claim 11** and need not be reiterated.

16. With respect to **Amended Claim 12**, **Kinanen** teaches and shows from figures 1, 2, col. 1 line 5 through col. 4 line 25; that "**the MRI device comprises at least eight shaping coils.**" The same reasons for rejection, which apply to **claim 1** also apply to **claim 12** and need not be reiterated.

17. With respect to **Amended Claim 13**, **Kinanen** teaches and shows from figures 1, 2, col. 1 line 5 through col. 4 line 25; at least one of **the** shaping coils is configured to shapes **the** magnetic field in **the** volume to a uniformity of at least 10 ppm. [See specifically col. 3 lines 41-44]. The same reasons for rejection, which apply to **claim 1** also apply to **claim 13** and need not be reiterated.

18. With respect to **Amended Claim 14**, **Kinanen** teaches and shows from figures 1, 2 that "**the MRI device comprises an even number of shaping coils.**" The same reasons for rejection, which apply to **claim 1** also apply to **claim 14** and need not be reiterated.

19. With respect to **Amended Claim 15**, **Kinanen** teaches and shows from figures 1, 2; col. 1 line 5 through col. 4 line 25; and the abstract; that "a first half of the number of shaping coils have a first magnetic polarity and a second half of the number of shaping coils have a second magnetic polarity substantially opposite that of **the** first magnetic polarity", because the exact polarity of each coil, and the exact positioning and spacing of each coil is selected to optimize the uniformity of the spherical magnetic field in the examination region. [See col. 3 lines 36-49.] Therefore any combination of polarity is within the scope of the **Kinanen** reference. The same reasons for rejection, which apply to **claims 1, 14** also apply to **claim 15** and need not be reiterated.

20. With respect to **Amended Claim 16**, **Kinanen** teaches and shows from figures 1, 2; col. 1 line 5 through col. 4 line 25; and the abstract; that “at least one of **the** plurality of shaping coils has a magnetic polarity opposite to a magnetic polarity of another of **the** plurality of shaping coils” because the exact polarity of each coil, and the exact positioning and spacing of each coil is selected to optimize the uniformity of the spherical magnetic field in the examination region. [See col. 3 lines 36-49.] Therefore any combination of polarity is within the scope of the **Kinanen** reference. The same reasons for rejection, which apply to **claim 1**, also apply to **claim 16** and need not be reiterated.

21. With respect to **Amended Claim 17**, **Kinanen** teaches and shows from figures 1, 2; col. 1 line 5 through col. 4 line 25; and the abstract; that “A magnetic resonance imaging (MRI) apparatus for imaging a volume, comprising: at least one main coil” (i.e. component 30) configured to generate a magnetic field about the volume; wherein the at least one main coil comprises a first axis and a first radius at least one bucking” (i.e. shielding) “coil” (i.e. in figure 1 the outer-upper portion of upper assembly 18 is a ferrous ring and the outer-lower portion of lower assembly 20 is a ferrous ring, which assists in magnetic field optimization, and is functionally a bucking / shielding coil) that comprises a second axis and a second radius wherein the at least one bucking coil is configured to shield the magnetic field from the at least one main coil;” [See figure 1, col. 1 line 5 through col. 4 line 25] “a plurality of shaping coils” [See figure 1 rose ring assembly component 40, col. 3 lines 28-37; as well as figure 2 the upper multiplicity of ferrous discs which are shown in figure 2 as component 80.] “comprising a third axis and a third radii wherein the at least plurality of shaping coils are configured to shape **the** magnetic field in **the** volume; and a plurality of ferromagnetic rings” (i.e. component 46, and) “comprising a fourth axis and a fourth radii wherein the at least plurality of ferromagnetic rings are configured to shield interactions between coils of opposite polarity,” [See col. 3 lines 36-49] “wherein the first, second, third, and fourth axis are generally aligned with one another, wherein at least one ring of the plurality of ferromagnetic rings” (i.e. component 46) positioned axially between” circumferentially within “the” diameter of the ring which comprises the main

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coil 30 of the “at least one main coil and” circumferentially within “the” diameter of the ring which comprises the “at least one bucking coil” (i.e. in figure 1 the outer-upper portion of upper assembly 18 is a ferrous ring and the outer-lower portion of lower assembly 20 is a ferrous ring, which assists in magnetic field optimization, and is functionally a bucking / shielding coil), “wherein the at least one main coil, the at least one bucking coil, and the at least one ring are positioned in a radially overlapping stacked relationship with one another”. [See figure 1, because there is nested radial stacking from right to left in the upper assembly, 12 as well as the lower assembly 14. Additionally, both the upper and lower assemblies are mirror symmetrical to one another, and are also respectively radially stacked in the vertical direction, because the axis of the coils in the lower assemblies also the axis for the upper assembly. The same reasons for rejection, which apply to **claims 1, 2, 10, and 11**, also apply to **claim 17** and need not be reiterated.

22. With respect to **Amended Claim 18**, **Kinanen** teaches and shows from figures 1, 2; col. 1 line 5 through col. 4 line 25; and the abstract; “a single unit support structure” [See figure 1] configured to support the at least one main coil, the at least one bucking coil, the plurality of shaping coils, and the plurality of ferromagnetic rings.” The same reasons for rejection, which apply to **claims 1, 2, 10, 11, 17**, also apply to **claim 18** and need not be reiterated.

23. With respect to **Amended Claim 19**, **Kinanen** teaches and shows from figures 1, 2; col. 1 line 5 through col. 4 line 25; and the abstract; that “the single unit support structure comprises: a substantially cylindrical shell;” [See figures 1, 2] “a hub positioned along a substantially central axis of the cylindrical shell; [See figures 1, 2] “and a gusset” (i.e. the non-ferrous structural mounting elements which are taught but not shown, to interconnect the upper pole assembly with the upper ferrous structure and the lower pole piece with the lower ferrous structure, of col. 2 line 67 through col. 3 line 3) “positioned radially between the substantially cylindrical shell and the hub.” [See figures 1, 2 with the teachings of col. 1 line 5 through col. 4 line 25.] The same reasons for rejection, which apply to **claims 1, 2, 10, 11, 17, and 18** also apply to **claim 19** and need not be reiterated.

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24. With respect to **Amended Claim 20**, **Kinanen** teaches and shows from figures 1, 2; col. 1 line 5 through col. 4 line 25; and the abstract; "A magnetic resonance imaging (MRI) apparatus for imaging a volume, comprising: means for generating a magnetic field for imaging the volume;" [See figures 1, 2 component 30] means for shielding the magnetic field from the means for generating;" (i.e. the shielding coils component 46 of figure 1) "and means for shaping the magnetic field radially smaller than the means for generating the magnetic field and positioned axially further from the volume than the means for generating the magnetic field or in a plane of the means for generating the magnetic field;" (i.e. the rose shim assembly component 40 of figure 1) "and means for intermediately shielding (i.e. either the middle shielding ring 46, or the other part of the rose assembly defined by component 42) between the means for generating and the means for shielding, wherein the means for generating, the means for shielding, and the means for intermediately shielding are positioned in an axially stacked relationship with one another. [See figures 1, 2 and col. 1 line 5 through col. 4 line 25.]

25. With respect to **Amended Claim 21**, **Kinanen** teaches and shows from figures 1, 2; col. 1 line 5 through col. 4 line 25; and the abstract; a "means for supporting the means for generating, the means for shielding, and the means for shaping, and the means for intermediately shielding." [See figures 1, 2 and col. 1 line 5 through col. 4 line 25.] The same reasons for rejection, which apply to **claim 20** also apply to **claim 21** and need not be reiterated.

26. With respect to **Amended Claim 22**, **Kinanen** teaches and shows from figures 1, 2; col. 1 line 5 through col. 4 line 25 that "wherein the means for intermediately shielding comprises: means for **intermediately** shielding interactions between coils of opposite polarities of the means for generating and the means for shielding " because the exact polarity of each coil, and the exact positioning and spacing of each coil is selected to optimize the uniformity of the spherical magnetic field in the examination region. [See col. 3 lines 36-49.] Therefore any combination of polarity is within the scope of the **Kinanen** reference. The same reasons for rejection, which apply to **claims 1, 20**, also apply to **claim 22** and need not be reiterated.

27. With respect to **New Claim 30**, **Kinanen** shows from figures 1, 2; and the teachings of col. 1 line 5 through col. 4 line 25 that “the means for supporting is disposed radially outside the means for shaping and radially inside the means for generating, the means for shielding, and the means for intermediately shielding.” [See figures 1 and 2] The same reasons for rejection, which apply to **claims 20, 21** also apply to **claim 30** and need not be reiterated.

28. With respect to **Amended Claim 23**, **Kinanen** shows from figures 1, 2; and teaches from the abstract and col. 1 line 5 through col. 4 line 25; “An open magnetic resonance imaging (MRI) device, comprising: first and second main coils configured to generate a magnetic field to image a volume; and first and second sets of shaping coils” [See figure 1 upper rose ring assembly component 40, col. 3 lines 28-37; as well as figure 2 the upper multiplicity of ferrous discs which are shown in figure 2 as component 80.] “positioned adjacent to each of **the** first and second main coils, respectively, each set of shaping coils being radially smaller than the respective main coil and positioned axially further from the volume than **the** respective main coil or in a plane of the respective main coil to shape **the** magnetic field in **the** volume; “a cylindrical support structure comprising a first cylindrical portion and a second cylindrical portion, wherein the first cylindrical portion is disposed radially between the first main coil and the first set of shaping coils” (i.e. component 36 of upper assembly 18), “and the second cylindrical portion is disposed radially between the second main coil and the second set of shaping coils; ” (i.e. component 36 of lower assembly 20), and an enclosure comprising a first enclosure portion and a second enclosure portion, wherein the first enclosure portion” (pole assembly 12 with upper structure 18) “is disposed about the first main coil, the first set of shaping coils, and the first cylindrical portion, and the second enclosure portion” (i.e. pole assembly 14 with lower structure 20) is disposed about the second main coil, the second set of shaping coils, and the second cylindrical portion.” [See figures 1, 2; and teaches from the abstract and col. 1 line 5 through col. 4 line 25;] The same reasons for rejection, which apply to **claims 1, 2, 10, and 11**, also apply to **claim 23** and need not be reiterated.

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29. With respect to **New Claim 31, Kinanen** shows from figures 1, 2; and teaches from the abstract and col. 1 line 5 through col. 4 line 25; "first and second shielding coils disposed axially about the first and second main coils", (i.e. [See figure 1, s shield coils 46] because the word "about" broadly comprises shield coils axially disposed on either an inner or outer axis of reference) "respectively; and first and second ferromagnetic rings" (i.e. component 40) "disposed axially between the first and second main coils and the first and second shielding coils, respectively". [See figure 1] The same reasons for rejection, which apply to **claims 1, 2, 10, 11, and 23**, also apply to **claim 31** and need not be reiterated.

30. With respect to **New Claim 32, Kinanen** shows from figures 1, 2; and teaches from the abstract and col. 1 line 5 through col. 4 line 25; that "the first main coil, the first ferromagnetic ring, and the first shielding coil are generally positioned in an axially stacked relationship with one another; and wherein the second main coil, the second ferromagnetic ring, and the second shielding coil are generally positioned in an axially stacked relationship with one another." [See figure 1]] The same reasons for rejection, which apply to **claims 1, 2, 10, 11, 23 and 31**, also apply to **claim 32** and need not be reiterated.

31. With respect to **New Claim 24, Kinanen** shows from figures 1, 2; "a ferromagnetic ring disposed in" concentrically "an axially stacked relationship with the main coil." The same reasons for rejection, which apply to **claim 1**, also apply to **claim 24** and need not be reiterated.

32. With respect to **New Claim 25, Kinanen** shows from figures 1, 2; "a shielding coil disposed in the axially stacked relationship with the main coil and the ferromagnetic ring." [See also the abstract, and col. 1 line 5 through col. 4 line 25]. The same reasons for rejection, which apply to **claims 1, 25** also apply to **claim 25** and need not be reiterated.

33. With respect to **New Claim 26, Kinanen** shows from figures 1, 2; "a shielding coil and a ferromagnetic ring, wherein the ferromagnetic ring is disposed directly axially between the main coil and the shielding coil." [See also the abstract, and col. 1 line 5

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through col. 4 line 25]. The same reasons for rejection, which apply to **claim 1**, also apply to **claim 26** and need not be reiterated.

34. With respect to **New Claim 27**, **Kinanen** shows from figures 1, 2; “a shielding coil and a ferromagnetic ring disposed between the main coil and the shielding coil, wherein the main coil, the ferromagnetic ring, and the shielding coil are generally positioned in an axially stacked relationship with one another”. [See also the abstract, and col. 1 line 5 through col. 4 line 25]. The same reasons for rejection, which apply to **claim 1**, also apply to **claim 27** and need not be reiterated.

35. With respect to **New Claim 28**, **Kinanen** shows from figures 1, 2; “the pressure vessel” (i.e. component 32) “is disposed about” (i.e. around, / circumferentially on the outer side of) “the main coil, the ferromagnetic ring, the shielding coil, the plurality of shaping coils, and the substantially cylindrical support.” The same reasons for rejection, which apply to **claims 1, 27**, also apply to **claim 26** and need not be reiterated.

36. With respect to **New Claim 29**, **Kinanen** shows from figures 1, 2; and the teachings of col. 2 line 67 through col. 3 line 3, “a central hub and a gusset disposed radially inside the substantially cylindrical support, wherein the central hub is disposed radially inside the gusset.” The same reasons for rejection, which apply to **claims 1, 3, 27**, also apply to **claim 26** and need not be reiterated.

37. With respect to **New Claim 33**, **Kinanen** teaches and shows from figures 1, 2; col. 1 line 5 through col. 4 line 25; and the abstract; “A magnetic resonance imaging device, comprising: opposite cylindrical supports disposed about a magnetic resonance imaging region;” [See figure 1] “opposite shaping coils disposed about the magnetic resonance imaging region, wherein the opposite shaping coils are disposed concentrically within the opposite cylindrical supports, respectively;” [See figure 1] “opposite main coils disposed about the magnetic resonance imaging region, wherein the opposite main coils are disposed concentrically about the opposite cylindrical supports, respectively;” [See figure 1] “opposite ferromagnetic rings disposed concentrically about the opposite cylindrical supports, respectively;” [See figure 1] and

38. “opposite shielding coils disposed concentrically about the opposite cylindrical supports, respectively, wherein the opposite main coils, the opposite ferromagnetic

rings, and the opposite shielding coils are positioned in an axially stacked relationship along the opposite cylindrical supports, respectively.” [See figure 1, col. 1 line 5 through col. 4 line 25; and the abstract.] The same reasons for rejection, which apply to **claim 1**, also apply to **claim 33** and need not be reiterated.

39. With respect to **New Claim 34**, **Kinanen** teaches and shows from figures 1, 2; col. 1 line 5 through col. 4 line 25; and the abstract; that “the opposite ferromagnetic rings are configured to shield interactions between the opposite main coils and the opposite shielding coils, respectively.” The same reasons for rejection, which apply to **claims 1, 33**, also apply to **claim 34** and need not be reiterated.

40. With respect to **New Claim 35**, **Kinanen** teaches and shows from figures 1, 2; col. 1 line 5 through col. 4 line 25; and the abstract; “opposite pressure vessels disposed about the opposite cylindrical supports, the opposite shaping coils, the opposite main coils, the opposite ferromagnetic rings, and the opposite shielding coils, respectively.” The same reasons for rejection, which apply to **claims 1, 33**, also apply to **claim 35** and need not be reiterated.

36. With respect to **new Claim 36**, **Kinanen** teaches and shows from figures 1, 2; col. 1 line 5 through col. 4 line 25; and the abstract; “A magnetic resonance imaging (MRI) device, comprising: an axially stacked MRI arrangement’, [See figures 1, 2] “comprising: a MRI main coil;” (i.e. component 30) “a MRI shielding coil;” 9i.e. component 46) “and a MRI ferromagnetic ring”, (i.e. component 40) “wherein the MRI ferromagnetic ring is positioned axially between the MRI main coil and the MRI shielding coil in the axially stacked MRI arrangement”. [See figures 1, 2]

41. With respect to **new Claim 37**, **Kinanen** teaches and shows from figures 1, 2; col. 1 line 5 through col. 4 line 25; and the abstract; “the axially stacked MRI arrangement is coupled to a single cylindrical support structure” [See figure 1, cylindrical lip component 36, of figure 1 which connects components 12, 18; and 14, 20 to components 32 and 40 of figure 1) col. 2 line 67 through col. 3 line 3]. The same reasons for rejection, which apply to **claim 36** also apply to **claim 37** and need not be reiterated.

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42. With respect to **new Claim 38**, **Kinanen** teaches and shows from figures 1, 2; “a pressure vessel” (i.e. component 32) ‘disposed about” (i.e. around, / circumferentially on the outer side of) “the axially stacked MRI arrangement and the single cylindrical support structure.” [See also col. 1 line 5 through col. 4 line 25; and the abstract.] The same reasons for rejection, which apply to **claims 36, 37** also apply to **claim 38** and need not be reiterated.

Response to arguments

43. Applicant's arguments with respect to **claims 1-23** have been considered but are moot in view of the new ground(s) of rejection, necessitated by amendment and **new claims 24-38**. The examiner notes that the claims as set forth do not structurally distinguish over the applied prior art because the applicant uses only “axially” or “radially” to define the frame of reference for the individual components. There is not enough specific component relationships to distinguish the applicants structure of the instant application, from that of the prior art, since axially and “radially” can be referenced from any axis, up down, right left, horizontal, vertical, etc.,. The claims as amended are still encompassed by existing prior art, because the shown structure of figure 1 is not fully and distinctly set forth in a manner, which distinguished over the prior art of record.

44. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

45. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Prior Art of Record

46. The **prior art made of record** and not relied upon is considered pertinent to applicant's disclosure.

A) ***Cheng et al.**, US Patent Application publication 2003/0001575 A1 published January 2nd 2003, filed January 19th 2001.

B) ***Cheng et al.**, PCT international publication WO 01/53847 A1 published 26 July 2001, filed January 19th 2001.

C) ***Danby** US patent 6,201,394 B1 published March 13th 2001, filed November 21st 1997.

D) **Dorri et al.**, US patent 5,565, 831 issued October 15th 1996; This reference teaches a structure similar to **Bryne et al.**, in a non-"C" configuration but fails to show the presence of "gussets". It is pertinent to all claims but the applied prior art above is considered to be the most relevant.

E) **Pulyer** US patent 5,378,988 issued January 3rd 1995.

F) **Ries** US patent 5,347,252 issued September 13th 1994. See entire reference.

G) **Huson et al.**, **US patent 5,315,276 issued May 24th 1994** This reference teaches a structure similar to **Bryne et al.**, but fails to show the presence of "gussets". It is pertinent to all claims but the applied prior art above is considered to be the most relevant.

H) **Westphal et al.**, US patent 5,485,088 issued January 16th 1996. [See entire reference.]

I) **Ohashi et al.**, US patent 5,864,275 issued January 26th 1999. [See entire reference.]

J) **Ohashi et al.**, US patent 5,963,117 issued October 5th 1999. [See entire reference.]

K) **Minas et al.**, US patent 6,717,408 B2 issued April 6th 2004,; filed April 5th 2001. [See entire reference.]

L) **Minas et al.**, US patent application publication 2002/0145426 A1 published October 10th 2002; filed April 5th 2001. [See entire reference.]

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M) **Laskaris et al.**, US patent application publication 2004/0100261 A1 published May 27th 2004; filed November 25th 2002. The examiner notes that this reference is the pre-grant publication of applicant's instant application, which is noted for the purposes of a complete record only, and is not available as prior art against the pending claims.

N) **Bryne et al.**, US patent 6,211,676 B1 issued April 3rd 2001.

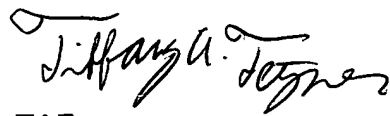
O) **Chari et al.**, US patent 5,307,039 issued April 26th 1994.

Conclusion

47. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tiffany Fetzner whose telephone number is: (571) 272-2241. The examiner can normally be reached on Monday-Thursday from 7:00am to 4:30pm., and on alternate Friday's from 7:00am to 3:30pm.

48. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez, can be reached at (571) 272-2245. The **only official fax phone number** for the organization where this application or proceeding is assigned is **(571) 273-8300**.

49. Information regarding the status of an application may be obtained from the Patent Application information Retrieval (PAIR) system Status information for published applications may be obtained from either Private PMR or Public PMR. Status information for unpublished applications is available through Private PMR only. For more information about the PMR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PMR system contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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